

## **Historic, Archive Document**

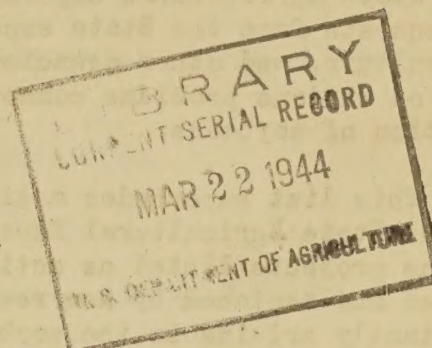
Do not assume content reflects current scientific knowledge, policies, or practices.



Reserve

1.9  
EX 6 So

UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Administration  
Office of Experiment Stations



A  
SOYBEAN PROJECTS  
OF THE  
STATE AGRICULTURAL EXPERIMENT STATIONS, 1944

Compiled by  
Henry M. Steece  
Senior Experiment Station Administrator

Washington, D. C.  
February 1, 1944



## EXPLANATORY NOTE

This is a list of the research projects concerned with soybeans, including edible soybeans and soybean products, currently active at the several State agricultural experiment stations. It was compiled in response to requests from the State experiment stations, the U. S. Department of Agriculture, and other agencies for such information as an aid in their work on various problems connected with the production, handling, and utilization of soybeans.

This list supersedes a similar publication entitled Soybean Projects of the State Agricultural Experiment Stations, 1937 (May 20, 1937). Most of the projects listed as active in the earlier publication have been completed and replaced by new researches. These deal with numerous problems constantly arising in the soybean industry and reflect the broader scope and greater complexity of the general problem. Enormous expansion in the United States soybean acreage, with recent shift in center of production from the Southeastern States to the Corn Belt, has brought forth problems inherent in the peculiar sensitiveness of soybeans to variations of soil and climate. In addition are those problems concerned with newer production methods, changes in cropping systems, insects and diseases, harvesting, and storage. Other fields of inquiry have come out of wartime demands for soybean oil and meal for use in strategic materials, and the increasing use of soybean meal as a high-protein feed for livestock and poultry. Changes in eating habits in which the soybean plays an important part as a green or dried vegetable and as a protein food to supplement animal products, like meat, eggs, milk, and cheese, have also provided many problems for station research.

Stations cooperating with the U. S. Regional Soybean Laboratory (Urbana, Ill.) in conducting coordinated adaptation (nursery) tests with groups of varieties and selections include the Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Virginia, and Wisconsin Stations. At several stations these tests are carried on as distinct projects, while at other stations the tests proceed as phases of other projects.

The entries in the list include the project title, experiment station departments involved, and cooperation with the U. S. Department of Agriculture.



SOYBEAN PROJECTS REPORTED TO BE CURRENTLY ACTIVE

AT THE STATE EXPERIMENT STATIONS

ALABAMA

Breeding of legumes for forage and soil improvement, Agron. & Soils (Coop. B. P. I. S. A. E.).

Soybean variety test, Agron. & Soils, 3 substations.

Cooperative uniform tests, Agron. & Soils (Coop. B. P. I. S. A. E.).

Factors influencing seed production of legumes, Agron. & Soils.

Adaptation of edible soybean varieties, Agron. & Soils.

Forage tests for hay, temporary grazing, and winter grazing value, Agron. & Soils.

The inorganic nutrition of plants, Agron. & Soils.

Effect of inoculation on certain legumes, Agron. & Soils.

Factors affecting vitamin A stability and utilization, An. Indus.

Oil crops for Alabama, Agron. & Soils.

ALASKA

Plant breeding and variety improvement, Agron.

Raising dairy calves in Alaska, An. Indus., Matanuska Substa.

ARIZONA

Soil moisture, heredity, and climatic factors affecting seed setting, quality of seed produced, and shatter resistance of soybeans, Agron.

Cooperative crop experiments, Agron.

The influence of soil microbiological activity on the character and productivity of Arizona range and cultivated soils, Chem. & Soils.

ARKANSAS

Soybean improvement, Agron., Ent., Pl. Path., Cotton Br. Sta.

Legume improvement, Agron.

Crop rotations, Agron.

Legume variety and cultural studies, Agron.

Irrigation of tilled crops, Agron., Rice Br. Sta.



## ARKANSAS (Contd.)

Effects of soybeans and other legumes on following crops of corn or cotton, Agron.

Soils and soil productivity, Agron.

Pasture and roughage utilization by farm animals, An. Indus., Agron.

Dehydration of fruits and vegetables, Hort., For., H. Ec., Eng.

## CALIFORNIA

Trials with miscellaneous winter and summer legumes for forage and soil improvement purposes, Agron., Davis.

Agronomic studies on oil-producing crops in California to determine adaptation, yield, and quality of product produced, Agron., Davis.

The values of some natural feedstuffs with respect to growth, reproduction, and viability of chickens, P. Husb., Berkeley.

The relation of nutritional factors to growth and efficiency of gain in turkeys with special reference to California feeding stuffs, P. Husb., Davis.

## COLORADO

Improved seed, Agron.

Testing of new crop plants and vegetable types in Colorado for wartime production and use, Hort.

More suitable production in dry farming by adapted crops, tillage, and rotation, Agron. (Coop. B. P. I. S. A. E.).

Longevity of farm seeds, Agron.

Comparison of wheat and milo and different grades of corn when fed with two levels of soybean oil meal in fattening pigs, An. Indus.

Limitations in the use of soybean products in poultry feeding, P. Husb., H. Ec., Chem., An. Indus., Path. & Bact.

Sources of protein for poultry, P. Husb.

The effect of soybean oil meal on reproduction, H. Ec.

## CONNECTICUT (NEW HAVEN)

The relative efficiency of nitrogen from castor pomace, soybean oil meal, and cottonseed meal, Tobacco & Vegetable Substa.

Comparison of single sources of nitrogen, Tobacco & Vegetable Substa.



CONNECTICUT (NEW HAVEN) (Contd.)

Ammonification and nitrification of fertilizer materials, Tobacco & Vegetable Substa.

Nitrogen relationships in soil maintenance by green manures in vegetable cropping systems, Soils.

CONNECTICUT (STORRS)

Studies on the fertilization of potatoes. B, Green manure crops for potatoes, Agron.

Maintenance of organic matter and productivity of vegetable soils, Hort.

Vitamin supplements in the poultry ration, P. Husb.

Substitutes for animal proteins in poultry feeds, P. Husb.

DELAWARE

Soybean improvement, Agron.

Control of soybean diseases, Pl. Path., Agron.

The control of red stele and other root rots of strawberry by selection of resistant strains and crop rotations, Pl. Path., Hort.

Soil management for peaches, Hort., Chem.

Apple soil management, Chem., Hort.

Protein supplements for growing fattening pigs, An. Indus.

War emergency rations for poultry, An. Indus.

Rations for laying pullets, An. Indus.

32 percent protein concentrates for chicks self-fed with grain, An. Indus.

Use of vegetable waste as a source of poultry feeding, An. Indus. (Coop. Eastern Regional Res. Lab.).

FLORIDA

Variety test work with field crops, Agron. (Coop. B. P. I. S. A. E.).

Forage nursery and plant adaptation studies, Agron. (Coop. B. P. I. S. A. E.).

Forage crop investigations, Everglades Br. Sta.

Forage crop investigations, North Florida Br. Sta.

Factors affecting the growth of legume bacteria and nodule development, Agron.



## GEORGIA

Breeding improved varieties of soybeans, Agron.

Variety tests of soybeans and cowpeas, Agron.

Experiments with edible soybeans, Agron.

The effect of liming on the yield and on the mineral nutrition of important crops in Georgia, Agron., Chem. (Coop. B. P. I. S. A. E., T. V. A.).

Influence of plant foods on crop production, soil protection, and plant composition in north Georgia, Chem., Hort., Agron. (Coop. T. V. A.).

Fertilizer requirements of vegetables in north Georgia, Hort.

Irrigation of vegetable crops, Hort. (Coop. T. V. A.).

To determine the feasibility of dehydrating legume and other leaf meals in Georgia, Chem.

A comparison of soybean, peanut hay, lespedeza, kudzu, and sericea as roughages for fattening cattle, An. Indus., Chem., H. Ec.

## GEORGIA COASTAL PLAIN

Soybean variety test, Agron.

Regional soybean variety test, F. & P., (Coop. B. P. I. S. A. E.).

Cooperative forage crops and animal grazing experiments, Agron. (Coop. B. P. I. S. A. E., B. A. I.).

Feeding trials with hogs, An. Husb.

## HAWAII

Forage crops--adaptability, breeding, and yield studies, Agron.

A study of certain factors affecting the germination and viability of seeds in Hawaii, Pl. Phys.

Study of special problems of the production, preservation, and utilization of food and forage under war emergency conditions in Hawaii, Admin.

Control of insects of truck crops, Ent.

The use of non-protein nitrogen as protein substitutes in the nutrition of cattle and swine, An. Husb.

Comparative value of various grasses and legumes grown in the Tropics as roughages for dairy cattle and most effective and economical way of utilizing such roughages, D. Husb.

General piggery upkeep project, An. Husb.



HAWAII (Contd.)

A study of the nutritive value of foodstuffs in Hawaii by means of chemical analyses and biological experiments.

The available iron in Hawaiian vegetables, Food & Nutr.

IDAHO

Specialty crops, Agron.

Protein supplements in wartime poultry rations, P. Husb., Chem.

The efficiency of simplified mashes for home mixes, P. Husb.

ILLINOIS

Improvement of the soybean, Agron. (Coop. B. P. I. S. A. E.).

Performance of varieties of soybeans, Agron. (Coop. B. P. I. S. A. E.).

Factors affecting the inoculation of legumes, Agron.

Investigation of the soybean in its relation to crop succession, Agron.

The effect of crop rotations, crop residues, and legumes on soil productivity, Agron.

Effect of soybeans and corn residues and of a straw mulch on infiltration capacity and physical condition of a soil, Agron.

Insects attacking cowpeas and soybeans, Agron., Ent.

Studies of the Japanese beetle, Ent., Agron. (Coop. B. E. P. Q.).

Reduction of power, machinery, and labor, and building and fencing costs, Agr. Eng.

Harvesting studies and investigations, Agr. Eng.

Hay harvesting methods, Agr. Eng.

A study of the practices and costs in growing and harvesting soybeans and of the use of small-sized combines in harvesting soybeans and other crops, Agr. Ec.

Shrinkage, storage, and artificial drying of soft corn, seed corn, small grains, soybeans, and hay crops, Agron., Agr. Eng.

Grain storage, Agr. Eng.

Changes in the nutritive value of feeds on storage, An. Husb.

The nutritive value of the proteins of feeds and animal food products, An. Husb.



ILLINOIS (Contd.)

Protein supplements for growing fattening swine, An. Husb.

Soybean oil meal in rations of laying hens, An. Husb.

Soybeans and soybean products as human food, H. Ec.

Investigation of prices of Illinois farm products, Agr. Ec.

Effects of transportation charges on grain marketing organizations in Illinois, Agr. Ec.

INDIANA

The development by breeding and selection of adapted varieties and strains of soybeans that are suitable for industrial utilization, Agron. (Coop. B. P. I. S. A. E.).

Agronomic, physiologic, and genetic research with soybeans.--2, Genetic investigations of soybeans.--3, Studies on the effect of cultural and production methods on the yield, quality, and composition of soybean seed, Agron. (Coop. B. P. I. S. A. E.).

Testing varieties of small grains, legumes, forage, and miscellaneous field crops, Agron.

Current problems in crop production.--3, Comparison of solid seeding with row seedings at various widths and rates in soybean grain production, Agron.

The influence on soils and crops of fertilization of cereals only, legumes only, or of all crops in a four-year rotation of corn, soybeans, wheat, and clover, Bot., Agron.

Comparative studies of various systems of cropping under different soil and climatic conditions, Agron.

The role of fat in swine nutrition, An. Husb., Agr. Chem.

Utilization of Indiana grown grains, grain products, and protein and vitamin supplements for growing chickens, P. Husb.

Utilization of Indiana feeds in feeding chickens and turkeys for egg production and hatchability, P. Husb.

The supplementary value of pure vitamins and vitamin rich feeds for corn and soybean oil meal rations for poultry, P. Husb., Agr. Chem.

The chemistry and utilization of the phosphatides, sterols, and associated compounds of soybeans, Agr. Chem.



IOWA .

Development of soybean varieties superior in agronomic characters and composition of seed by hybridization and selection, Agron. (Coop. B. P. I. S. A. E.).

Seed increase of new or improved varieties of field crops, Agron.

Soybean variety and selection tests, Agron. (Coop. B. P. I. S. A. E.).

The adaptation of new crops and crop varieties, distributed by the station, to the different soil and climatic conditions found in the State and the increase of seed of such crops and varieties, Agron.

Differential response of soybean varieties to rate and date of planting, Agron. (Coop. B. P. I. S. A. E.).

The effect of injury simulating hail damage to soybeans, Agron. (Coop. B. P. I. S. A. E.).

Soybean production in relation to fertilizer applications, and crop sequence, Agron.

Rotation and fertilizer studies with corn, soybeans, oats, hay, and green manure crops on Clarion and Webster soils at Ames, Agron.

Crop rotations for claypan soils of southern Iowa, Agron.

The value of different crop rotations on Marshall silt loam, Agron.

Contouring in relation to crop yields and soil and water conservation (Coop. S. C. S.).

Nitrogen fixation by soybeans, Agron., Bact.

Biology, ecology, and control of grass-feeding grasshoppers (non-migratory grasshoppers of economic importance) in Iowa, Ent. & Ec. Zool.

The effect of feeding soybeans and soybean products alone and in combination with other feeds on milk production and milk and butterfat quality, An. Husb., D. Indus.

Vitamin E content of various feeds used in compounding rations for livestock and poultry, An. Husb., Chem.

The adaptability of the rat for studies of the chemical relationships between the food ingested and the softness of body fat, An. Husb., Chem.

The extraction of soybean oil by means of a non-flammable solvent, Engin. Expt. Sta.

KANSAS

Soybeans, sweet clover, and miscellaneous legume production, Agron.

Soybean variety and cultural tests on the southeastern, southcentral, and northeastern Kansas experiment fields, Agron.

KANSAS (Contd.)

Cooperative experiments with farmers, Agron.

The temperature relations of crop plants, Agron.

Vegetable investigations, Hort.

The nitrogen balance and physical properties of soils as influenced by different legumes and grasses, Agron.

Soil fertility investigations, Agron.

Resistance of crop plants to insect injury, Ent., Agron.

Physiological studies on noxious weeds in relation to their control.--I, Studies on field bindweed (Convolvulus arvensis). D, A study of the shade tolerance of bindweed, Agron.

Carrying capacity of temporary pastures, D. Husb., Agron.

The industrial utilization of sorghum grains and other crops, Chem., Chem. Eng.

Quality and nutritional value of fruits and vegetables processed by freezing and dehydrating, Hort., H. Ec., Chem.

KENTUCKY

Occurrence, distribution, and function of less common elements, Chem.

Study of the effectiveness of different legumes in the maintenance of productiveness, Agron., Western Ky. Substa.

Crop rotations experiments, Agron.

The effect of cropping and soil management conditions on yield and quality of the leaf of White Burley tobacco, Agron.

A study of the influence of certain rations on the composition and quality of fat deposited in eggs and adipose tissue of chickens, An. Indus.

Effects on reproduction and fleshing qualities and consumer demand of factors affecting rate of growth in chicks, An. Indus.

LOUISIANA

Soybean breeding, Agron.

Outfield variety and fertilizer tests with soybeans, Agron.

Soybean variety tests, Northeast La. Substa.

Oil content of soybeans in relation to variety and growth conditions, Agron. (Coop. B. P. I. S. A. E.).

Effect of fertilizers and organic matter in a rotation of sugarcane with one year of legumes, Sugar Substa.



## LOUISIANA (Contd.)

Two-years' of legumes in rotation with three years of sugarcane, Sugar Substa.

The effects of organic matter, deep plowing, and vegetative cover on the runoff, erosion, structural aggregation, composition, and crop yields on the lower Mississippi terrace soils, Agr. Eng., Agron. (Coop. S. C. S.).

An investigation of the soybean caterpillar, Anticarsia gemmatilis, also known as the velvetbean caterpillar, and associated caterpillars which are destructive to soybeans, alfalfa, and various cover and forage crops, in order to develop economical means of combating them, Ent.

Effect of amount, quality, and management of pastures on nutrition of dairy cattle, Dairy.

Efficiency of various southern plant protein supplements when fed at relatively high levels to growing fattening swine, An. Indus.

Rations and methods of feeding laying hens, An. Indus., Northeast La. Substa.

## MAINE

Improvement of farm crops for Maine by breeding methods and variety trials, Crops & Soils.

Breeding and cultural investigations with garden crops, Crops & Soils.

## MARYLAND

Soybean production in Maryland, Agron.

Crop rotation tests with tobacco, Agron. (Coop. B. P. I. S. A. E.).

Effects of different short rotations on physical and chemical and biological conditions in the soil and on crop production, Agron.

Control of the diseases of soybeans, Bot., Hort., Agron.

Efficiency of soil fertility management, Agron., Agr. Ec.

The value of organic matter in the production of vegetable crops, Hort., Agron.

Nutritive requirements of poultry. A, The place of soybean meal in poultry ration. F, The variability of the feeding value of soybean oil meals, P. Husb.

## MASSACHUSETTS

No soybean projects listed as currently active.

## MICHIGAN

Adaptation and other characteristics of soybean varieties, Farm Crops.

MICHIGAN (Contd.)

Methods and costs of raising and finishing beef cattle, An. Husb.

A study of the relative value of a low-fat grain mixture and a high-fat grain mixture for milk and fat production, D. Husb.

Soybean oil for pigs, An. Husb.

A study of different baby chick rations, with special reference to the amount and quality of protein, minerals, and vitamins, P. Husb.

The availability of iron in some common foods, H. Ec.

The use of soybeans as a vegetable and of soybean products in restaurants, hotels, and other institutions, H. Ec.

The development of agricultural sprays for the reduction of transpirational water loss from plants, Chem., Bot. & Pl. Path., Hort.

MINNESOTA

Varietal improvement in field peas, soybeans, and field beans, Agron. & Pl. Gen.

The development of disease-resistant varieties of farm crops, Pl. Path. & Bot.

Cooperative seed production and distribution, Agron. & Pl. Gen.

Respiration and storage behavior of soybeans and soybean products, Biochem., Pl. Path. & Bot.

A study of quality, outlets, handling methods, and utilization of certain Minnesota fruits and vegetables.--3, Study of varieties of Minnesota-grown fruits and vegetables to determine their adaptability for freezing preservation in locker storage plants, Hort.

MISSISSIPPI

Soybean improvement and investigations, Delta Br. Sta. (Coop. B. P. I. S. A. E.).

Variety tests with corn, cotton, soybeans, and small grains, Agron.

Soybean variety test, Holly Springs, Raymond, and South Miss. Br. Stas.

Residual effects of various crops and soil treatments on cotton and corn, Delta Br. Sta.

Different legumes followed by cotton, Holly Springs Br. Sta.

Lime, phosphorus, and potash for soybeans, Holly Springs Br. Sta.

MISSOURI

Improvement of the Missouri soybean crop.--1, As feed for livestock.--2, As material for industrial uses, Field Crops (Coop. B. P. I. S. A. E.).



MISSOURI (Contd.)

Crop rotation and fertilizer experiments, Soils.

Studies of water absorption, runoff, erosion, and soil moisture movements under different soil and cropping conditions, Soils.

Investigation of the accumulation or depletion of nitrogen and carbon in soils under different systems of soil treatment and management, Soils.

Fineness of grinding limestone, Soils.

Economic use of power, labor, and machinery in crop production, Agr. Eng.

Nutritional studies of growth and milk production, D. Husb.

Forage crops for swine, An. Husb.

Rations for weanling pigs, An. Husb.

Value of soybean oil meal in rations for young chicks, P. Husb.

The vitamin potency of pork as influenced by the rations and the distribution in the tissues and organs.--1, Vitamin A.--2, Riboflavin, H. Ec., An. Husb., Chem.

MONTANA

Variety tests with soybeans on irrigated and non-irrigated land, Huntley Field Sta. (Coop. B. P. I. S. A. E.).

Variety tests with soybeans, Hort. Br. Sta.

NEBRASKA

Selection, breeding and testing of soybeans for productivity, high oil and protein content for industrial and farm utilization, and favorable vegetative characteristics, Agron.

Crop rotations, Agron.

Biological effect of crop residues and organic matter maintained on the surface of the soil for controlling water intake, runoff, and erosion, Agron. (Coop. S. C. S.).

Eradication and control of noxious weeds, Agron., Agr. Eng.

A study of the minimum quantities of milk needed for the growth of dairy calves, together with milk substitutes for calf raising, D. Husb.

A study of the utilization of food elements by growing chicks, Chem., P. Husb.

Nutritive value of certain feedstuffs for growing chicks, Agr. Chem., P. Husb.

NEVADA

No soybean projects listed as currently active.

NEW HAMPSHIRE

No soybean projects listed as currently active.

NEW JERSEY

Grain crop investigations, Agron.

Forage crop investigations, Agron.

Trace elements in New Jersey soils in relation to crop production, Soils and Crops.

A study of methods of accumulating humus in soils and of the effects of this humus on soil characteristics and plant growth, Soils.

Total digestible nutrients and protein studies in relation to milk and fat production, D. Husb.

To determine the most economical species of plant crops for utilization as hog pastures during the various grazing seasons, An. Husb.

Poultry management. (i) The hopper feeding of mash and grain, P. Husb.

Poultry nutrition. (a) A study of grains suitable for squab production, P. Husb.

NEW MEXICO

No soybean projects listed as currently active.

NEW YORK CORNELL

Soybean breeding, Pl. Brdg.

An investigation of methods for improving the quality and economy of production of feed crops in the principal soil and climatic regions of New York State, Agron.

Effect of the time of day at which crops are cut for hay or ensilage on the nutritive and curing qualities of the materials, Bot., An. Husb., Agron.

A study of the potash requirements of crop plants grown on different soil types, Agron., Veg. Crops.

A study of making legume inoculants, Agron.

The production of silage from crops high in protein, Agron.

The nutritive value for farm animals of the proteins furnished by common protein-rich supplements and by typical legume and non-legume rations, An. Husb.

Comparison of protein supplements for fattening steers, An. Husb.

The physiology of fats and related constituents in lactating animals, An. Husb.



NEW YORK CORNELL (Contd.)

Comparison of protein supplements for fattening lambs, An. Husb.

The nutritive properties of poultry feedstuffs, P. Husb.

Relative economy of various foods in an adequate diet in New York State, H. Ec.

NEW YORK STATE

The freezing preparation of edible soybeans and soybean sprouts, Chem.

NORTH CAROLINA

The production and evaluation of soybean varieties and the determination of their response to cultural and other environmental factors, Agron., Bot. (Coop. B. P. I. S. A. E.).

Annual and perennial hay studies, Agron., An. Indus. (Coop. B. P. I. S. A. E.).

Placement of phosphate and potash on soybeans and peanuts, Agron.

Boron in North Carolina soils and the effects of added boron on growth of crops, Agron.

Control studies for diseases of soybeans, Bot., Agron.

Fertilizer requirements of tobacco in rotation with oats, soybeans, and wheat followed by weeds, Tobacco Br. Sta. (Coop. B. P. I. S. A. E.).

Tobacco after soybeans, Tobacco Br. Sta. (Coop. B. P. I. S. A. E.).

Nutrition of peanuts and cotton grown in rotation with soil-building crops, Agron. (Coop. B. P. I. S. A. E.).

Soil fertility in relation to Irish potato production.

Effect of soil factors, fertilizers, line, and crop sequence on plant viability, stand, production, time of maturity, and quality of strawberries, Agron., Hort. (Coop. B. P. I. S. A. E.).

Riboflavin content of soybeans and cowpeas, An. Indus.

Maturing dairy heifers, An. Indus.

Utilization of reeds in forest grazing.--II, Wintering calves on reed pasture, An. Indus. (Coop. B. A. I., F. S.).

Soybeans in swine rations--their nutritive deficiencies and their effect on fat deposition and rancidity development, An. Indus.

Comparison of protein supplements for fattening pigs, An. Indus.

Effect of mature soybeans on ewes and lambs, An. Indus.

NORTH DAKOTA

Soybean variety trials, Agron. and Substas.

Free selection of feeds by growing turkeys, P. Husb.

Regional soybean nursery (Coop. B. P. I. S. A. E.).

OHIO

Soybean variety and breeding experiments, Agron. (Coop. B. P. I. S. A. E.).

Improvement of the edible soybean, Hort.

Soybean culture experiments, Agron.

Factors influencing the success of seedings of forage crops, Agron.

Methods of seeding forage crops, Agron.

Special hay and forage crop investigations, Agron.

Fertilization of soybeans, Agron.

Development of soil structure suitable for potatoes in silt loam, Hort.

Tillage practices in relation to soil structure, with special reference to methods of preserving the desirable structure created by growing crops, Agr. Eng., Agron.

Peach tree behavior under different cultural treatments which affect soil organic matter, Hort.

Sugar beet rotation experiments, Agron.

Crop-rotation experiments - outlying farms, Agron.

Effect of method of harvesting of soybeans on the following wheat crop, Agron.

A comparison of ground shelled corn, corn- and cob meal (cobs 20% of the meal) and corn-and-cob meal (cobs 33 1/3% of the meal) for fattening steers, An. Indus.

Source and amount of protein supplements for pigs on pasture, An. Indus.

Soybean oil meal for pigs, An. Indus.

Physical, chemical, and biological factors in the formation and preservation of silages made from mixtures of legumes and non-legumes, Agr. Eng., D. Husb., Agron., An. Indus.

Nutritional factors affecting the production and hatchability of hens' eggs, An. Indus.

The value of milk products and vitamin B complex containing fermentation by-products in chick rations, An. Indus.



OHIO (Contd.)

Rations and methods of feeding layers, An. Indus.

Rations and methods of management for growth of chickens indoors, An. Indus.

OKLAHOMA

Soybean variety tests, Agron.

Regional soybean variety tests and improvement, Agron. (Coop. B. P. I. S. A. E.).

Effect of soil and climatic conditions on the chemical composition of legume crops with reference to mineral deficiencies, Agron.

Crop rotation and fertility, Agron.

To determine the nutritive value of feeds and rations for wintering beef cattle by conducting digestion and metabolism experiments with individual steers along with group feeding experiments where the animals receive the same kinds and amounts of feed per steer, An. Husb., Chem.

Problems in wintering steer calves and in the production of finished yearlings involving the use of a maximum of grass and a minimum of grain, An. Husb.

Need for a phosphorus supplement when soybean cake is fed to beef cattle, An. Husb.

Soybean meal v. cottonseed meal with year long grazing, An. Husb.

The optimum protein level of pigs of various weights, An. Husb., Chem.

The amounts and kinds of protein desirable for growth, fattening, and reproduction in turkeys, Poul., Chem.

The nutrition of farm-raised chicks in feeding stations, P. Husb.

OREGON

Testing soybean varieties for high yields of seed for essential oil production and for food, Southern Oreg. Br. Sta. and Malheur Expt. Area.

Forage crops investigations, Farm Crops (Coop. B. P. I. S. A. E.).

Legume cultures standardization and bacteriological service, Bact.

Supplements for alfalfa hay rations for dairy cattle, D. Husb.

The effect of alfalfa hay supplemented with soybeans or meal on crumbliness and stickiness of butter, D. Husb.

The comparative feeding value of feeds for hogs, An. Husb.

Milk substitutes in poultry rations, P. Husb.

Emergency rations for turkey breeding stock, P. Husb.

OREGON (Contd.)

Emergency poult starting and growing rations, P. Husb.

Emergency poult and growing rations, Umatilla Br. Sta.

PENNSYLVANIA

Varieties of soybeans, Agron.

Short duration fertilizing experiments involving a coordinated study of the amount and kind of fertilizers and the time and method of application best suited to Pennsylvania crops, soils, and conditions, Agron.

Effect of soil acidity, rotations, and time of planting on yield and quality of white potatoes, Agron.

A study of several annual crops for silage purposes and as preservation for legumes when ensiled, Chem., Agron., D. Husb.

The preparation, fermentation, and feeding value of grass and legume silage, D. Husb., Chem., Bact.

Protein requirement of pigs on forage, An. Husb., Chem.

The nutritive requirements of growing and fattening swine, An. Husb., Chem.

The nutritive value of plant protein feeds in growing, laying, and breeding rations for chickens, P. Husb.

The economic production of turkeys, P. Husb.

Nutritive deficiency diseases in poultry, Chem., P. Husb.

The nutritive value of plant protein feeds in growing, laying, and breeding rations for chickens, P. Husb.

Propagation and nutrition of game birds, P. Husb., Chem.

PUERTO RICO UNIVERSITY STATION (RIO PIEDRAS)

Varietal experiments with soybeans, Phytotech., Isabela Substa.

The effect of season of planting and variety upon the yield and composition of soybeans in Puerto Rico, Phytotech.

Response of food crops to fertilizer applications and fertilizer substitutes in the major soil types, Pl. Brdg., Phytotech., Soils.

Studies on forage crops (grasses and legumes) and on concentrated feed-stuffs in Puerto Rico, An. Husb., Phytotech., School of Tropical Medicine.

Nutritional studies of the Puerto Rican dietary, Chem., School of Tropical Medicine.

PUERTO RICO FEDERAL STATION (MAYAGUEZ)

Food crop investigations.



RHODE ISLAND

A test of various varieties of edible soybeans for their adaptation to Rhode Island conditions, Hort.

SOUTH CAROLINA

Soybean variety tests, Agron., Substas.

Effect of continuous use of various nitrogen fertilizers upon crop response and the chemical properties of the soil, Agron.

A study of the adaptability of the various soil types in the trucking area to the production of the different vegetable crops, Agron.

Effect of various cover crops on the growth of Elberta peach trees, Hort. (Coop. S. C. S.).

The relation between cobalt in soil and in pasture grasses and other forage plants, and the effect upon beef cattle of probable cobalt deficiency in the feed and forage crops grown in certain areas of South Carolina, Chem.

Winter roughages for dairy cattle, D. Husb.

Vegetable protein in laying and breeding rations, Poul.

A study of the factors influencing the carotene content of feeds grown in South Carolina, Chem.

SOUTH DAKOTA

Variety and cultural experiments with soybeans, Agron.

Depth of tillage, Agron.

Harvesting and threshing machinery for new South Dakota crops, Agr. Eng., Agron.

The grain from sorghums v. corn for fattening steers, An. Husb.

Soft corn as a feed for fattening livestock, An. Husb.

Swine breeding and feeding experiments, An. Husb.

Improving rations for pigs after weaning, An. Husb.

Relative values of common crop varieties for poultry rations, Poul.

Factors affecting egg quality and their effects on hatchability of chicken eggs, P. Husb.

Influence of feeding and management upon the hatchability of turkey eggs, P. Husb., Chem.

TENNESSEE

Soybeans, field.--Varietal trials and selection for improvement, Agron.  
Soybeans, edible--Varietal trials, Agron., Hort.  
Home production of food supplies, Agron., Hort., An. Husb., H. Ec.  
Crop rotations, Agron., West Tenn. Substa.  
Production of Burley tobacco, Agron.  
Preservation of fruits and vegetables by freezing, Chem.

TEXAS

Adaptation and improvement of legumes, Agron.  
Crop improvement, Agron.  
Variety tests of legumes, soybeans, Agron.  
Crop variety tests, Agron.  
Adaptability investigations with vegetable crops, Hort.  
Chemical analyses and investigations of commercial feeds, Chem.  
Productive value of feeds, Chem.  
An evaluation of animal and vegetable protein feeds with respect to chemical composition and feeding value, An. Husb.  
The calcium requirements of growing and fattening pigs when fed grain rations balanced with varying protein supplement feed, Swine Husb.  
The role of pantothenic acid in the nutrition of poultry. P. Husb.  
Pullet development rations particularly as differentiated from brooder rations, P. Husb.  
Protein requirements for chick rations, P. Husb.  
Quality in turkeys as affected by nutrition, environment, and breeding, P. Husb.  
The productive value of human foods, Chem.

UTAH

Miscellaneous crop tests, Agron. & Soils.  
Permanent fertility studies, Chem., Bact. & Biochem.  
Factors influencing the bacterial activities of the soil, Bact. & Biochem.  
Miscellaneous poultry feeding, P. Husb.



UTAH (Contd.)

Freezing preservation of Utah vegetables, Hort., Veg. Crops, H. Ec., D. Mfg.

VERMONT

Crop trials, Agron.

VIRGINIA

Variety tests with soybeans, County Substas., Agron.

Relation of variety to oil content in soybeans, Agron.

Relation of time of planting to date of blooming and final maturity in corn and soybeans, Agron., Williamsburg County Substa.

Available plant food experiment, County Substas.

Minor element experiment with crops grown in rotation, Agron., County Substas.

Crop relations experiment, Bowling Green (Coop. B. P. I. S. A. E.).

Rotations, cultural methods, fertilizer treatments for grain and feed crops grown in southwestern Virginia, County Substas.

Fertilizer experiments with tobacco and crops grown in rotation with it, Agron., County Substas. (Coop. B. P. I. S. A. E.).

WASHINGTON

A study of the characteristics of crop varieties in relation to adaptation, Agron.

Legume culture, Agron.

Varietal investigations of legumes under irrigation, Irrigation Br. Sta.

Crop cover studies, Hort. (Coop. B. P. I. S. A. E.).

Vitamin value of edible soybeans, Hort., H. Ec.

Swine feeding trials with varying amounts of vegetable proteins, including soybean oil meal, in the protein supplement, An. Husb.

The evaluation of protein supplements for poultry, Chem., P. Husb.

The development of new chick rations, Chem., P. Husb.

Vegetable protein concentrates for poultry, Chem., P. Husb.

The protein requirements of laying hens, Chem., P. Husb.

Soybean oil meal as a substitute for animal protein in the laying mash, Chem., P. Husb.

Emergency wartime turkey rations, Chem., P. Husb.



WASHINGTON (Contd.)

Soybean oil meal in combination with different cereal grains for laying hens, Western Wash. Sta.

The chemical composition of feeds, Western Wash. Sta.

WEST VIRGINIA

Variety testing of corn, wheat, oats, and soybeans, Agron. & Gen.

Crop rotation experiments, Agron. & Gen.

Crop responses, Agron. & Gen., Hort.

Soil acidity and plant growth, Agron. & Gen.

A study of the effect of rations and methods of feeding grain in egg production, An. Husb., Biochem.

Battery rations for growing chicks, An. Husb.

A study of the relative values for growth of the proteins of a number of feeds used in poultry rations, An. Husb., Biochem.

The nutritive value of edible soybeans, H. Ec.

WISCONSIN

Soybean breeding and evaluation trials, Agron., Hort.

Cultural methods for pastures and field crops, Agr. Eng., Agron.

The factors concerned with the fixation of nitrogen by legume crops, Agr. Bact.

The preservation of roughages in the form of hay or silage. The effect of dried and preserved fodder on the nutritive value of milk. Nutritive value of dried and ensiled forages for growth and milk production, D. Husb., Agron., Agr. Eng., Biochem.

The nutritive value of soybean oil meal, Biochem., An. Husb., P. Husb.

Protein supplements in rations for growing and fattening pigs, An. Husb.

Nutritive requirements of poultry, with special reference to protein, vitamin, and mineral requirements of growing chicks and breeding hens, P. Husb., Biochem.

The metabolism of proteins, A, Relation of quality of protein to the human utilization of riboflavin. B, Relation of household methods of cookery to the quality of soybean protein, H. Ec.

The egg replacement value of certain proteins and their value for serum protein regeneration, H. Ec.



WYOMING

Varietal tests with grains, forage crops, potatoes, etc., Torrington and Sheridan Substas.

Experiments with forage crops and grasses, Agron. & Agr. Ec.

Improving the rate of feathering with broad-breasted Bronze turkeys to hasten marketing, An. Husb.

The free choice method of feeding soybean oil meal to chickens and turkeys, An. Prod.

Methods of feeding and composition of protein concentrates for poultry, An. Prod.

Poultry tests on rations and housing methods, Torrington Substa.

